1. A double diamond bicycle frame comprising:

a top tube;

a seat tube;

a down tube;

a head tube; and

a seat stay-chain stay structure which includes at least one differentially stiff carbon fiber tube that is differentially stiff with regard to bending and twisting.

2. The double diamond bicycle frame set forth in claim 1 wherein:

the at least one differentially stiff carbon fiber tube is made using a lay-up which gives greater stiffness with regard to bending than with regard to twisting.

3. The double diamond bicycle frame set forth in claim 1 wherein:

the seat stay-chain stay structure includes dual seat stays; and

both the dual seat stays and the chain stays are made of carbon fiber tubes that are stiffer with regard to bending than with regard to twisting.

4. The double diamond bicycle frame set forth in claim 3 wherein:

the dual seat stays and the chain stays are made using lay-ups which give greater stiffness with regard to bending than with regard to twisting.

5. The double diamond bicycle frame set forth in claim 1 wherein:

the seat stay-chain stay structure includes a wishbone seat stay;

and

the chain stays are carbon fiber tubes made using lay-ups which give greater stiffness with regard to bending than with regard to twisting.

6. The double diamond bicycle frame set forth in claim 5 wherein:

the handle of the wishbone seat stay is a carbon fiber tube whose cross section is greater in a horizontal direction than in a vertical direction.

7. A bicycle frame comprising:

a plurality of carbon fiber tubes joined at joints; and

one or more lugs on the joints, a lug being made by

making a lay-up of at least carbon fibers and a matrix material around the joint,

applying a mold to the tubes and laid-up fibers and matrix material, and

curing the lug in the mold, the cure including expansion of an element enclosed by the mold.

8. The bicycle frame set forth in claim 7 wherein:

the element is a component of the mold which expands to urge the lay-up against the tubes.

9. The bicycle frame set forth in claim 7 wherein:

the element is a component of the lay-up which expands to urge the lay-up against the tubes and the mold.

10. The bicycle frame set forth in claim 7 wherein:

the mold has a form such that the lugs taper towards the tubes as the distance from the joint increases.

11. A seat stay-chain stay structure for a bicycle frame,
the structure being characterized in that:

the structure includes at least one differentially-stiff carbon fiber tube that is differentially stiff with regard to bending and to twisting.

12. The seat stay-chain stay structure set forth in claim 11 wherein:

the at least one differentially stiff carbon fiber tube is made using a lay-up which gives greater stiffness with regard to bending than with regard to twisting.

13. The seat stay-chain stay structure set forth in claim 11 wherein:

the seat stay-chain stay structure includes dual seat stays; and

both the dual seat stays and the chain stays are made of carbon fiber tubes that are stiffer with regard to bending than with regard to twisting.

14. The seat stay-chain stay structure set forth in claim 13 wherein:

the dual seat stays and the chain stays are made using lay-ups which give greater stiffness with regard to bending than with regard to twisting.

15. The seat stay-chain stay structure set forth in claim 11 wherein:

the seat stay-chain stay structure includes a wishbone seat stay; and

the chain stays are carbon fiber tubes made using lay-ups which give greater stiffness with regard to bending than with regard to twisting.

16. The seat stay-chain stay structure set forth in claim 15 wherein:

the handle of the wishbone seat stay is a carbon fiber tube with a cross section which is greater in the horizontal direction than in the vertical direction.

17. A method of making lugs for joints in a bicycle frame made of carbon fiber tubes, the method comprising the steps of:

making a lay-up of at least carbon fibers and a matrix material around the joint,

applying a mold to the tubes and laid-up fibers and matrix material, and

curing the lug in the mold, the cure including expansion of an element enclosed by the mold.

18. The method set forth in claim 17 wherein:

the mold is a captured silicon mold; and

in the step of curing the lug in the mold, the cure includes expansion of the captured silicon.

19. The method set forth in claim 17 wherein:

the step of making the lay-up includes the step of including a layer of expanding foam in the lay-up; and

in the step of curing the lug in the mold, the cure includes expansion of the foam.

20. The method set forth in claim 17 wherein:

the step of making a lay-up includes the steps of:

wrapping each tube in the joint with a first carbon fiber fabric that is impregnated with the matrix material, the ends of the fabric extending beyond the tube;

wrapping the ends of the carbon fiber fabric that is wrapped around a given tube around the tube the given tube joins to;

wrapping the entire joint in a second carbon fiber fabric whose fibers have an orientation different from that of the fibers in the first carbon fiber fabric.

21. The method set forth in claim 20 wherein:

the step of making a lay-up further includes the step of:

including a layer of expanding foam in the lay-up.

22. The method set forth in claim 21 wherein:

the step of including a layer of expanding foam is performed before the step of wrapping the entire joint in a second carbon fiber fabric.

23. The method set forth in claim 20 wherein:

the step of wrapping the entire joint is done such that all seams in the second carbon fiber fabric are at the top and bottom of the tubes and the second carbon fiber fabric is overlapped at the seams.